



STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH

Revised Total Coliform Rule Level 1 Assessment Form Instructions

General Requirements

A Level 1 assessment is a basic examination of the distribution system, water sources, treatment facilities, storage facilities and relevant operational practices at a public water system (PWS). A Level 1 assessment helps to identify possible sanitary defects that may have triggered the assessment. The *Revised Total Coliform Rule Level 1 Assessment Form* identifies the minimum elements that must be reviewed and identifies typical events that could impact water quality or indicate that water quality may have been impaired. It is intended as a self-assessment and may be performed by the PWS owner or operator.

In accordance with the EPA Revised Total Coliform Rule (RTCR) (40 CFR 141), a PWS must conduct a Level 1 Assessment after exceeding any of the following treatment technique triggers:

- For a PWS taking 40 or more samples per month, more than 5.0 percent of the samples taken are total coliform-positive.
- For a PWS taking fewer than 40 samples per month, two or more samples are total coliform-positive in the same month.
- The PWS fails to take every required repeat sample after any single routine total coliform-positive sample.

NOTE: If this is the second Level 1 treatment technique trigger within the past 12-month rolling period, the PWS is required to perform a Level 2 Assessment. Level 2 Assessments must be conducted by a third-party person certified by the Department to conduct Level 2 Assessments or by the Department. Please refer to the Level 2 Assessment form and instructions for more information.

Reporting Requirements

The completed *Revised Total Coliform Rule Level 1 Assessment Form* must be submitted to the Department no later than 30 days after the date that the PWS learns that a treatment technique trigger has been exceeded (Assessment Trigger Date). All potential Sanitary Defects that were identified during the Level 1 Assessment must be corrected at the time the form is submitted. The form must include a description of the potential Sanitary Defect identified and the actions taken to correct the Sanitary Defect. If the Sanitary Defect cannot be corrected by the time the form is submitted, the PWS must provide a proposed corrective action with a date for completion.

The completed form must be returned to the Drinking Water Section at:

Mail: State of Connecticut
Department of Public Health
Drinking Water Section
410 Capitol Avenue, MS# 51WAT
P.O. Box 340308
Hartford, CT 06134-0308

Email: dwdcompliance@ct.gov

Fax: 860-509-7359

Form Instructions

Public Water System Information

PWS ID:	Public Water System (PWS) Identification Number (CTXXXXXXX)
PWS Name:	Name of the PWS
Town:	Primary town served by the PWS
Date Assessment Form Completed:	Date that the Assessment Form was completed
Assessment Trigger Date:	Date that the PWS learned that a Level 1 treatment technique trigger was exceeded
Assessment Trigger:	Indicate which Level 1 treatment technique trigger was exceeded

NOTE: If this is the second Level 1 treatment technique trigger within the past 12-month rolling period, the system is required to perform a Level 2 Assessment.



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1 General Questions

1.1.	Have there been any visible or physical indicators of unsanitary conditions?	Inspect system components: wells, tanks, etc. and the area around them to determine the sanitary conditions and if it may be a concern. Physical indicators of unsanitary conditions may include but are not limited to: trash dumping, animal/bird droppings, overflowing septic systems, mice or rodent activity/nesting near the well, air compressor intake for hydro pneumatic tanks or unpressurized storage tanks.
1.2	Have there been any signs of vandalism or forced entry?	Determine if there were signs that water system components were tampered with. Immediately notify police and CT DPH if there was any vandalism or forced entry.
1.3	Have there been any other water quality issues within the distribution or plumbing systems (i.e. color, turbidity, taste, and odor)?	Review water quality physical tests and system complaints. Water quality issues include changes in water color, turbidity, odor, taste, cloudiness. Some, not all, changes in water quality may be associated with the bacteriological contamination of drinking water systems.

2 Operational Changes

2.1	Has there been any other source of supply used or placed into operation that is not normally used?	Determine if any water sources not routinely used have been placed into operation such as lag, standby alternate or emergency well, interconnection, bulk water delivery, etc.
2.2	Have there been any general repairs, operational changes or maintenance activities on the water system?	Review records and/or ask person(s) who deal with the system to determine if any repairs, operational changes, addition of other system components or maintenance activities have occurred. This includes: treatment – chemical or filter, well pump, tank – atmospheric or pressure, water mains, building plumbing/fixtures, etc.
2.3	Was there a failure to follow adequate disinfection practices following any repairs or maintenance activities on the system?	Verify that the system was properly disinfected upon completion of any repair or maintenance activity. Examples of activities that require disinfection include work on or replacement of: well, pumps, tanks, pipes, filters, etc.

3 Sampling Sites

See [Sampling Site Plan Guidance](#)

3.1	Does the area surrounding each sampling tap appear to be unsanitary?	Determine if the taps used for the compliance monitoring are clean and in sanitary condition. Slop sink taps, taps in dirty condition, etc. may result in bacteriological contaminated samples.
3.2	Are there sampling taps that are not routinely used or not identified in the system's Sampling Site Plan?	Determine that the sampling taps are from locations where water is used on a routine basis and from locations identified in your DPH approved Sampling Site Plan. A tap that is not used on a routine basis may result in bacteriological contaminated samples, and a system is required to collect samples from approved sites.

4 Sampling Protocol

In answering the following questions consult with the laboratory that conducted the analysis and/or sample collector(s).

4.1	Was the sample taken in an improper sample container?	Verify that the sample containers were sterile and of the appropriate size or type for bacteriological sampling.
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4.2	Were there any sampling or handling errors (i.e. human error)?	Review chain-of-custody records and lab compliance reports to verify that samples containers were properly collected, handled and stored prior to, during or after sampling. This may include the removal of aerator, flushing or other procedure as a specific laboratory may conduct or require.
4.3	Were any of the sampling locations equipped with an auto sensing, swivel-or single-spout type faucet?	Determine if these type faucets were used. These types of faucets should not be used as sampling locations since hot water flows through the faucet or may leak and blend with the cold water, and hot water may contain bacteria.
4.4	Did the laboratory report any testing errors?	Review chain-of-custody records and lab compliance reports to verify that samples were analyzed in accordance with applicable methods.
5 Distribution		
5.1	Was an unprotected cross connection identified?	Review sanitary survey reports, cross connection inspection reports and recent work orders to determine if any cross connection violations have been identified and not corrected.
5.2	Has there been any distribution plumbing, water service or main breaks or installations?	Review records to determine if there were any repairs to the system.
5.3	Were there low disinfection residuals?	Review distribution sample results to determine if chlorine was below normal operating levels or if a detectable free chlorine level (i.e. > 0.05 mg/L) is maintained in the distribution or plumbing system. This would apply only to water systems which provide continuous chlorination treatment.
5.4	Have there been any incidents of low or inadequate pressure (<25 psi)?	Determine if there been any inadequate or low pressure events. Adequate pressure is the first barrier in protection of water system from contamination.
6 Ground Water Source		This section should be repeated for each ground water source. Include the name and facility ID number of the source. Check the <i>PWS does not have ground water sources</i> box if the PWS does not use any ground water sources.
6.1	Are there any holes or unprotected openings in the well casing?	Inspect the well casing to determine if there are any visible cracks or openings in the casing. For steel casing check for severe corrosion especially at the point where the casing enters the soil or a concrete floor.
6.2	Is there any failure or outbreak of a septic or sewer system in the area around the well?	Inspect the property around the well looking for evidence of failed septic or sewage system components by looking for wet soil areas, septic odors etc. and if it may be flowing toward the well.
6.3	Is the well located in a depressed area where water may collect or is subject to flooding, and has any flooding or ponding occurred?	Inspect the immediate area and grading around the well to determine if water runoff is being directed towards the vicinity of the well or may collect around the well. Also determine if there are signs that water has flooded or collected in the area. Surface water with bacteria may flow along a casing or through the soil and contaminate the water.



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6.4	Is the sanitary seal or well cap improperly installed to the casing and electric conduit, or are they in an unsatisfactory condition?	Inspect the well cap or sanitary seal (i.e. split seal) to determine if it is properly installed and in satisfactory condition (bolts are tightened, no openings, not cracked or missing pieces, does not move on casing, etc.). Additionally, determine if the electrical conduit is tightly connected into the cap or seal and the other end is buried into the ground, sealed or connected into an electrical box. The smallest opening into a well casing may cause a bacteriological contamination by allowing runoff, insects, mice, etc. to get into a well.
6.5	Does the well lack a vent?	Inspect the well cap or seal to determine if it has a vent. Lack of an appropriate vent can result in a negative pressure within the casing and potentially draw surface water with bacteria into a well. The DPH requires all wells to have a shielded and screened vent. If there is no vent one must be installed which may require the installation of a new cap or sanitary seal.
6.6	Is the vent not shielded or properly screened?	Inspect the vent to determine that it is properly shielded (inverted "J", mushroom type, or other) to prevent rain water from entering, connected tightly into a cap or sanitary seal, and provided with a fine mesh screen to keep insects, mice, etc. out.
6.7	Is the well pit currently flooded or is there any indication that water collects in the pit?	Examine the well pit and determine if there is standing water or is there is staining or other evidence of past flooding. Additionally determine if the pit is equipped with a gravity drain clear of obstructions or functioning sump pump.
6.8	Is the well pit drain line directly connected to a septic, sewer or storm drain system?	Inspect the drain line to verify that its discharge end is not connected to a septic, sewer or storm drainage system, is not subject to flooding and is properly screened to keep out mice, snakes, etc.
7 Treatment Facility		This section should be repeated for each treatment facility/plant. Include the name and facility ID number of the facility. Check the PWS does not have any treatment facilities box if the PWS does not use any treatment facilities.
7.1	Has there been any by-pass in the disinfection treatment process?	If the disinfection system is equipped with a by-pass determine that the by-pass valve was closed. A system providing disinfection treatment for compliance of a maximum contaminant level (MCL) must not have a bypass.
7.2	Is the filter backwash discharge line directly connected to a drainage pipe or sewer/septic line?	Inspect or follow the backwash discharge line to its discharge end to verify that it is not physically connected to the sewer or septic system or drain pipe.
7.3	Have there been any interruptions in disinfection treatment (UV, chlorine, etc.)?	Determine if there was an interruption on chlorine feed due to power outage, feed pump or other malfunction (loss of prime, no chemical, leak, etc.). For UV treatment assess whether the unit was operating and has been appropriately maintained (on or off, alarm mode, dirty quartz sleeve, lamp operational, etc.).
7.4	Has there been any recent installation or repair to the treatment process?	Review maintenance records to determine if there was any recent installations or changes to the treatment process. For systems with filters, this may include if any vessels have been re-bedded or replaced which includes cartridge filters. For chemical feed systems, this may include changes in chemical used or replacement of feed system components.



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7.5	Have there been any low or inadequate disinfection residual levels?	Review the daily or continuous monitoring records for water leaving a treatment plant to determine if residuals levels were below typical levels. For a ground water treatment plant approved to provide 4 log inactivation of viruses review operation records to determine if the level dropped below the approved minimum chlorine disinfection residual (free chlorine) or below the minimum CT of 6.0 mg min/L. For a surface water treatment plant review operational records to determine if the CT achieved and maintained at the system's water treatment plant supplying water to the area of the contamination was above the required CT as identified in EPA compliance tables. This would apply only to public water systems which provide continuous chlorination treatment. CT = contact time (min) x chlorine residual (mg/L)
7.6	Is there any evidence of filter or media contamination?	Review maintenance logs to see when the media was last replaced. For systems with a cartridge filter, review DPH's guidance document on cartridge filters (Follow the link for DPH guidance: Sediment Filter Replacement) to assess if protocol was followed. It is recommended to collect pre and post filter total coliform samples to determine if the contamination may be in the filter or its media
8 Storage Facilities		This section should be repeated for each storage facility. Include the name, type and facility ID number of the facility. Check the PWS does not have any storage facilities box if the PWS does not use any storage facilities. See Storage Tank Design and Construction Guidelines
8.1	Are there any holes or unprotected openings in the atmospheric tank(s)?	Inspect the tank to determine if there are any visible cracks or openings or components connected into tank.
8.2	Is the hatch on the atmospheric tank not sealed properly?	Inspect the hatch to ensure that it is properly sealed and is provided with; a raised curb frame, tightly fitting overlapping cover, or fitted with a gasket. A watertight seal with the appropriate gasket or other means is necessary to prevent surface wash, insects, vermin and other foreign matter from entering.
8.3	Is vent on the atmospheric tank <u>not</u> suitably protected and/or screened?	Inspect vents to ensure they are properly shielded and screened (fine mesh) and connected watertight into the tank. Sediment buildup, corrosion or biofilm in a tank may harbor bacteria.
8.4	Is the overflow on the atmospheric tank <u>not</u> suitably protected and/or screened?	Inspect the outlet of the overflow to ensure that it is has shielded (prevents rain or runoff from entering) screen (fine mesh) and /or provided with a duckbill or flap valve that closes tightly Inspect the overflow for rust, holes or other breaches. Additionally assess if the connection into the tank is watertight.
8.5	Has there been any recent work on the tank?	Assess if there was any work done on the tank. Examples could include repair, inspection, cleaning, or flushing of tank or where the tank vents, hatches, or overflows were repaired or opened. If it was a significant repair or work, it should be followed by adequate disinfection.
8.6	Is there recent evidence of unauthorized access to the tank or associated facilities?	Determine if there were signs that water system tanks were tampered with. Immediately notify police if this was done by an unauthorized person(s).
8.7	Is there any evidence of contamination from animals?	Inspect the areas of the storage tank that may be prone to animal (mice, snake, etc.) infestation for dropping, nesting or other activities.



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8.8	Is there any evidence of tank failure?	Inspect for evidence of failure. Examples include damaged bladder on pressure tank resulting in it being water logged, unexplained water loss or wet areas near buried tanks, severe corrosion/deterioration, etc.
8.9	Is there evidence of lack of maintenance, cleaning or inspection?	Review records to assess frequency of maintenance, cleaning or inspection.

Contact Information for the Person that Performed the Assessment

Complete all of the contact information for the person who performed the Level 1 Assessment. The individual identified may be contacted by the Department for more information and/or consultation.

Certification

The Level 1 Assessment Form must be signed by the person or a legal representative of the entity that owns or controls the Public Water System. Forms will not accepted without certification by the responsible party.